

**1.1 MONITORING PROGRAM OBJECTIVES**

The major objectives of the Monitoring Program outlined in the Municipal Storm Water Permit are to:

- Assess compliance with the Los Angeles County Municipal Storm Water Permit No. CAS004001;
- Measure and improve the effectiveness of the Stormwater Quality Management Plans (SQMPs);
- Assess the chemical, physical, and biological impacts of receiving waters resulting from urban runoff;
- Characterize storm water discharges;
- Identify sources of pollutants; and
- Assess the overall health and evaluate long-term trends in receiving water quality.

The Monitoring Program, developed to address these objectives, has several elements: core monitoring, which includes mass emission monitoring, water column toxicity monitoring, tributary monitoring, shoreline monitoring, and trash monitoring; regional monitoring, which includes estuary sampling and bioassessment; and three special studies, which include the new development impacts study in the Santa Clara Watershed, the peak discharge impact study, and the Best Management Practice (BMP) effectiveness study.

**1.2 MONITORING PROGRAM STATUS**

The 1994-95 storm season was the first for which storm water monitoring was required under the 1990 Los Angeles County National Pollutant Discharge Elimination System (NPDES) Municipal Storm Water Permit (No. CA0061654). During the 1994-95 and 1995-96 seasons, automated and manual sampling was conducted to characterize storm water quality and quantity in accordance with the 1990 Municipal Storm Water Permit.

The 1996-97 season was the first storm season in which storm water monitoring was conducted under the 1996 Municipal Storm Water Permit (No. CAS614001). Under the 1996 Municipal Storm Water Permit, the scope of the Monitoring Program was expanded to incorporate further data collection through the Mass Emission, Land Use, and Critical Source Monitoring Programs, and new pilot studies, such as “Wide Channel” and “Low Flow” analyses.

Under the 2001 Municipal Storm Water Permit (No. CAS004001) adopted on December 13, 2001, the Monitoring Program eliminated Land Use and Critical Source elements and focused on core monitoring, regional monitoring, and three special studies. Due to varying compliance dates for each element, only mass emission, water column toxicity, and shoreline monitoring under the core monitoring program were addressed in the 2001-2002 Monitoring Report. The 2002-2003 Monitoring Report addresses mass emission monitoring, tributary monitoring, water column

toxicity monitoring, shoreline monitoring, and trash monitoring under the core monitoring program, estuary sampling and bioassessment under the regional monitoring program, and the progress of the three special studies.

## **1.2.1 Core Monitoring**

### **1.2.1.1 Mass Emission Monitoring**

The objectives of mass emission monitoring are to estimate the mass emissions from the Municipal Separate Storm Sewer System (MS4), assess trends in the mass emissions over time, and determine if the MS4 is contributing to exceedances of water quality standards by comparing results to applicable standards in the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan), the California Ocean Plan (Ocean Plan), or the California Toxics Rule (CTR), and with emissions from other discharges.

Seven mass emission monitoring sites, Ballona Creek, Malibu Creek, Los Angeles River, Coyote Creek, San Gabriel River, Dominguez Channel, and Santa Clara River, were utilized to achieve the objectives outlined above during the 2002-2003 reporting period. Mass emission stations capture runoff from major Los Angeles County watersheds that generally have heterogeneous land use. All mass emission sites, except the Santa Clara River site, are equipped with automated samplers with integral flow meters for collecting flow-composite samples. Sampling at the Santa Clara River began during the 2002-2003 storm season. Although sample collections at the Santa Clara River station are performed manually, composite samples are achieved using the flow measurements by a United States Geological Survey (USGS) stream gage on-site. Four storm events and two dry weather events were sampled at each mass emission site. Total Suspended Solids (TSS) were collected from five storm events at the Santa Clara mass emission site, six storm events at Malibu Creek, San Gabriel River, and Dominguez Channel mass emission sites, seven storm events at Ballona Creek and Coyote Creek mass emission sites, and from eight storm events at the Los Angeles River mass emission site.

### **1.2.1.2 Water Column Toxicity Monitoring**

The objectives of water column toxicity monitoring are to evaluate the extent and causes of toxicity in receiving waters and to modify and utilize the SQMP to implement practices that eliminate or reduce sources of toxicity in storm water.

Composite samples were taken at the mass emission monitoring stations. Two storm events and two dry weather events were sampled at each mass emission site during the 2002-2003 season. The sea urchin fertilization test could not be performed on the October 9, 2002 wet weather sample because the purple sea urchin did not spawn due to seasonal variability.

### **1.2.1.3 Tributary Monitoring**

The objectives of tributary monitoring are to identify sub-watersheds where storm water discharges are causing or contributing to exceedances of water quality standards, and to prioritize drainage and sub-drainage areas that need management actions.

Sampling for the 2002-2003 season was conducted at six tributary monitoring stations in the Los Angeles River Watershed. The tributaries monitored included Aliso Creek, Bull Creek, Burbank

Western System Channel, Verdugo Wash, Arroyo Seco Channel, and Rio Hondo Channel. Automatic flow weighted composite samples were taken from each tributary location. Grab samples were also taken at these locations. Five storm events and one dry event were sampled at each tributary monitoring site.

#### **1.2.1.4 Shoreline Monitoring**

The City of Los Angeles is required to monitor shoreline stations to evaluate the impacts to coastal receiving waters and the loss of recreational beneficial uses resulting from storm water/urban runoff. Also, the Municipal Storm Water Permit requires the City of Los Angeles to annually assess shoreline water quality data and submit it to the Principal Permittee for inclusion in the monitoring report. Therefore, the City of Los Angeles' assessment is included in Appendix D of this monitoring report.

#### **1.2.1.5 Trash Monitoring**

The objectives of trash monitoring are to assess the quantities of trash in receiving waters after storm events and to identify areas impaired for trash. Visual observations of trash were made and a minimum of one photograph at each mass emission station was taken after four storm events including the first storm event.

In addition, a minimum of ten representative sites for each land use monitored were sampled. On average, each sampling site contained a minimum of five catch basins fitted with inserts with a total of 256 inserts within the Los Angeles Watershed Management Area (WMA) and 309 inserts within the Ballona Creek WMA. Three structural full capture devices were installed downstream of three separate sampling sites within the Ballona Creek WMA. All of the upstream catch basins were fitted with inserts. Each insert and the full capture devices were emptied within 72 hours of every rain event of 0.25 inches or greater.

### **1.2.2 Regional Monitoring**

Los Angeles County Department of Public Works (LACDPW), representing the Flood Control District, is participating in regional monitoring programs that address public health concerns, monitor trends in natural resources and near shore habitats, and assess regional impacts from storm water pollutant sources. Those regional programs include the following:

#### **1.2.2.1 Estuary Sampling**

In compliance with Section II.F of the storm water monitoring requirements, LACDPW is participating in the coastal ecology committee of the Bight 2003 project coordinated by the Southern California Coastal Waters Research Project (SCCWRP). The two primary objectives of Bight '03 are to estimate the extent and magnitude of ecological change in the Southern California Bight (SCB) and to determine the mass balance of pollutants that currently reside within the SCB. The goal of the estuary monitoring program is to sample estuaries for sediment chemistry, sediment toxicity, and benthic macroinvertebrate diversity to determine the spatial extent of sediment fate from storm water, and the magnitudes of its effects. In Los Angeles County, the estuaries being sampled are those of: Malibu Creek, Ballona Creek, Los Angeles River, San Gabriel River, and Dominguez Channel.

Since the beginning of 2003, LACDPW staff has been involved in the design of the sampling program through regular attendance of the Bight '03 Coastline Ecology Committee meetings. To date, SCCWRP and the Committee have developed a work plan, which includes the following schedule:

- Collect samples by September 2003
- Submit data by September 2004
- Submit reports to SCCWRP by September 2006
- SCCWRP to complete executive summary no later than December 2006

#### **1.2.2.2 Bioassessment**

Section II.G of the storm water monitoring requirements requires LACDPW to perform annual bioassessments on streams in Los Angeles County beginning in October 2003. On May 22, 2003, a list of 20 stream sampling sites was approved by the Los Angeles Regional Water Quality Control Board (RWQCB). The sampling sites are located in each of the six major watersheds throughout Los Angeles County. Table 1-1 lists the sampling station locations and Figure 1-1 is a map showing the geographical location of the sampling stations.

#### **1.2.3 Special Studies**

As required by the 2001 Municipal Storm Water Permit, LACDPW, representing the Flood Control District, is conducting special monitoring programs, including the following:

##### **1.2.3.1 New Development Impacts Study in the Santa Clara Watershed**

The objective of the New Development Impacts Study in the Santa Clara Watershed is to evaluate the effectiveness of the Standard Urban Storm Water Mitigation Plan (SUSMP) Best Management Practices at reducing pollutants in storm water runoff. This evaluation will be accomplished by comparing the water quality of runoff from a new development constructed in accordance with SUSMP requirements to a development similar in size and land use constructed prior to the adoption of SUSMP requirements.

On August 1, 2002, with the assistance of the City of Santa Clarita, LACDPW submitted a work plan for the study to the Los Angeles RWQCB for approval. Following discussions and revisions to the proposal, the RWQCB accepted a revised work plan on April 10, 2003. Sampling will begin in the 2003-04 storm season, and results will be included in the 2003-2004 storm water monitoring report.

##### **1.2.3.2 Peak Discharge Impact Study**

The goal of this study is to assess the potential cause and effect relationships between stream erosion and urbanization in watersheds in Los Angeles County and to create, if possible, an Index of Biological Indicators with data from surrounding counties. The Southern California Coastal Waters Research Project (SCCWRP) is managing the project on behalf of the County

and Flood Control District. A committee comprised of members of the Southern California Stormwater Monitoring Coalition is overseeing progress of the study.

In March, 2003, the contractor developed a set of site-selection criteria in coordination with the Stormwater Monitoring Coalition. As of July 2003, the contractor reported having tentatively selected three out of the ten required test sites. A draft work plan is scheduled for submission to the Stormwater Monitoring Coalition in September 2003. Final report submittal is scheduled for Spring 2004.

#### **1.2.3.3 *BMP Effectiveness Study***

The Flood Control District is participating in the Santa Monica Bay Restoration Commission's (SMBRC) "Performance Evaluation of Structural BMPs for Stormwater Pollution Control in the Santa Monica Bay Watershed" study to fulfill this requirement. The SMBRC's study is in the site selection stage.